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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,074	06/29/2000	John Christian Fluke	RAL9-1999-0133US1	7844

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EXAMINER

KISS, ERIC B

ART UNIT	PAPER NUMBER
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2122

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/607,074

Applicant(s)

FLUKE ET AL.

Examiner

Eric B. Kiss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

1. The amendment of April 21, 2003, has been received and entered. Claims 1-57 are pending.

Information Disclosure Statement

2. Applicant is reminded that the information disclosure statement filed June 29, 2000, fails to comply with 37 C.F.R. §1.98(a) as detailed in the previous office action.

The Examiner had further indicated, in the same previous office action, that U.S. Patent No. 5,841,250 (reference 2 of the information disclosure statement filed June 29, 2000) appeared to have been cited in error, and had not been fully considered.

Applicant has not yet addressed the above issues.

Response to Amendment

3. Applicant's amendment to correct the dependencies of claims 19, 38, and 57 appropriately addresses the rejection of claims 19, 38, and 57 under 35 U.S.C. §112, second paragraph, based on indefiniteness, as detailed in the previous office action. Accordingly, this rejection is withdrawn in view of Applicant's amendment.

Response to Arguments

4. Applicant's arguments filed April 21, 2003, have been fully considered but they are not persuasive.

5. As per Applicant's arguments on page 9, in paragraphs 1-3, it is submitted that the format argument pointers described in *Bugg* are inherently de-referenced prior to being output/stored (the format pointer is the format control string for the message to be displayed/stored). Further, in the online debugger system of *Wygodny*, the host processor does have access to the client application address space (see Fig. 2 and the description of Online Mode beginning on line 55 of column 6). Therefore, the Examiner asserts that modifying the *King* reference by either *Bugg* or *Wygodny* as applied in the previous office action would not render the *King* system inoperable as suggested by Applicant.

6. As per Applicant's arguments on page 10, in paragraphs 1-2, the `_CrtDbgReport()` function of *Bugg* saves memory contents comprising the address space of the application (*filename*, *linenumber*, and *modulename*, are each indicators of the address space of the application). In addition, it is respectfully submitted that the generally accepted definition of a non-volatile medium is a medium that does not lose data when power is removed from it. As applied in the rejection of claim 7, *Bugg* teaches sending debugging output, including format and data arguments to a file. In the Microsoft Windows® operating system discussed in *Bugg*, files

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are typically stored on non-volatile media such as floppy disks, hard disk drives, compact discs, etc.

7. In view of Applicant's amendment moving the limitation regarding the format argument being a pointer to a memory location in an address space of the application, formerly recited in each of dependent claims 10, 15, 29, 34, 48, and 53, into each of the independent claims, the Examiner herein applies the same grounds of rejection as previously applied to claims 15, 34, and 53 (under 35 U.S.C. §103(a); *King* in view of *Bugg*, wherein *Bugg* is relied upon as teaching the aforementioned limitation) to all claims previously rejected under 35 U.S.C. §102(e). It should be noted that the grounds of rejection for claims 10-14, 29-33, and 48-52 have not been changed as *Wygodny* is relied upon instead of *Bugg* to teach the missing limitation of *King*. As only the presented order of the claimed limitations has changed without new limitations being presented, the same disclosures, teachings, and reasoning are herein applied and reproduced below.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1, 2, 4-9, 15-21, 23-28, 34-40, 42-47 and 53-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,983,366 to King in view of Keith Bugg,

“Debugging Visual C++ Windows; Chapter 3: The Visual C++ Debugging Environment,” 1998 (hereinafter Bugg).

As per claim 1, King discloses a method of printing data from an application, comprising the steps of: invoking a print function with a format argument and at least one data argument from the application (trace definition and trace information; see column 14, lines 1-22; and column 18, lines 42-50); saving the format argument and the at least one data argument in a deferred trace data buffer (packed message; see column 19, lines 40-44); returning to the application that invoked the print function (continuing execution); then processing the deferred trace data buffer to print the at least one data argument (causing an output of the print messages; see column 18, lines 38-64; and Fig. 5). King fails to expressly disclose the format argument being a pointer to a memory location in an address space of the application. However, Bugg teaches a format argument a debugging information output command being a pointer to a memory location in an address space of an application (see “*format” in the `_CrtDbgReport()` prototype declaration on page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include a pointer to a memory location in an address space of the application as per the teachings of Bugg. One would be motivated to do so to allow for efficient access to character string data.

As per claim 2, King further discloses the step of processing the deferred trace data buffer to print the at least one data argument comprises the steps of: retrieving the format argument and the at least one data argument from the deferred trace data buffer; formatting the at least one data argument based on the format argument; and printing the formatted at least one data argument

(see column 19, lines 45-52). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claims 4 and 5, King further discloses determining if a deferred print flag has been set (class control); the step of saving the format argument and the at least one data argument in the deferred trace data buffer comprising the step of: saving the at least one data argument in the deferred trace data buffer if the deferred print flag has been set; and the step of processing the deferred trace data buffer to print the at least one data argument comprising the step of: processing the deferred trace data buffer to print the at least one data argument if the deferred print flag has been set (see column 14, lines 23-34). Therefore, for reasons stated above, such claims also would have been obvious.

As per claim 6, King further discloses the step of saving the format argument and the at least one data argument in the deferred trace buffer and the step of processing the deferred trace buffer to print the at least one data argument are performed in different execution threads (see column 19, lines 57-62). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 7, King discloses such a method (see disclosure applied above to claim 1), including a memory content comprising an address space of the application stored in a non-volatile storage medium (application program stored within the GSM transceiver is inherently resident in a non-volatile storage medium). King fails to expressly disclose saving the deferred trace data buffer and a memory content comprising an address space of the application in a non-volatile storage medium. However, Bugg teaches sending debugging output, including format and data arguments to a file, a debugger, and/or a message window (see “_CrtDbgReport()” on

page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include saving the deferred trace data buffer and a memory content comprising an address space of the application in a non-volatile storage medium (such as a file) as per the teachings of Bugg. One would be motivated to do so to have the ability to store debugging reports for later transmission or viewing.

As per claim 8, in addition to the disclosure and teachings applied above, King further discloses the step of saving the format argument and the at least one data argument being performed on a first computing machine and the step of processing the deferred trace data buffer to print the at least one data argument is performed on a second computing machine, the second computing machine being different from the first computing machine (see Fig. 4; and column 13, lines 17-28) and having access to the address space of the application via the non-volatile storage medium (compiling a trace control table into the data processing system application program; see column 15, line 65 through column 16, line 9). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 9, King discloses a method of printing data from an application, comprising the steps of: invoking a print function with a format argument from the application (trace definition and trace information; column 14, lines 1-22; see column 18, lines 42-50); saving the format argument in a deferred trace data buffer (packed message; see column 19, lines 40-44); returning to the application that invoked the print function (continuing execution); then processing the deferred trace data buffer to print the format argument (causing an output of the print messages; see column 18, lines 38-64; and Fig. 5). King fails to expressly disclose the format argument being a pointer to a memory location in an address space of the application.

However, Bugg teaches a format argument a debugging information output command being a pointer to a memory location in an address space of an application (see “*format” in the `_CrtDbgReport()` prototype declaration on page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include a pointer to a memory location in an address space of the application as per the teachings of Bugg. One would be motivated to do so to allow for efficient access to character string data.

As per claims 15 and 16, King discloses such a method (see disclosure applied above to claim 9), but fails to expressly disclose saving a contents of the memory location in the address space of the application that is referenced by the pointer in the deferred trace data buffer; and processing the deferred trace data buffer to print the contents of the memory location in the address space of the application that is referenced by the pointer. However, Bugg teaches using the format pointer to reference a string for an output message (see the second-to-last paragraph of page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include saving and printing the contents of the memory referenced by the pointer as per the teachings of Bugg. One would be motivated to do so to allow for efficient access to character string data.

As per claim 17, in addition to the teachings applied above, King further discloses the step of saving the format argument and the at least one data argument in the deferred trace buffer and the step of processing the deferred trace buffer to print the at least one data argument are performed in different execution threads (see column 19, lines 57-62). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 18, King discloses such a method (see disclosure applied above to claim 16) but fails to expressly disclose saving the deferred trace data buffer to a non-volatile storage medium. However, Bugg further teaches sending debugging output, including format and data arguments to a file, a debugger, and/or a message window (see “_CrtDbgReport()” on page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include saving the deferred trace data buffer to a non-volatile storage medium (such as a file) as per the teachings of Bugg. One would be motivated to do so to have the ability to store debugging reports for later transmission or viewing.

As per claim 19, King further discloses the step of saving the format argument and the at least one data argument being performed on a first computing machine and the step of processing the deferred trace data buffer to print the at least one data argument is performed on a second computing machine, the second computing machine being different from the first computing machine (see Fig. 4; and column 13, lines 17-28) and having access to the address space of the application via the non-volatile storage medium (compiling a trace control table into the data processing system application program; see column 15, line 65 through column 16, line 9). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claims 20, 21, 23-28, 34-40, 42-47, and 53-57, these are system and computer readable medium versions of the claimed methods discussed above (claims 1, 2, 4-9, and 15-19), wherein all claim limitations also have been addressed as set forth above. King further discloses a system and a computer-readable medium for performing the aforementioned method steps (see Figs. 4 and 5). Therefore, for reasons stated above, such claims also would have been obvious.

10. Claims 3, 22, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Bugg and further in view of Bill Karwin, "Subject: Okay," 1990 (hereinafter Karwin).

As per claim 3, King discloses such a method (see disclosure applied above to claim 2) but fails to expressly disclose determining if the format argument specifies a character string conversion, formatting the at least one data argument based on the format argument, and printing an address of a respective one of the at least one data argument that corresponds to the character string conversion. However, Bugg teaches sending debugging output, including format and data arguments to a file, a debugger, and/or a message window using a "printf()-like" function (see "_CrtDbgReport()" on page 2). Karwin further teaches a printf() function having format arguments specifying character string conversion and a data argument supplying an address to be substituted into the format string during processing of the function (see the printf() examples given in the first half of page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include printing an address corresponding to a character string conversion as per the combined teachings of Bugg and Karwin. One would be motivated to do so to allow addresses corresponding to stored variables to be displayed in a trace output.

As per claims 22 and 41, these are system and computer readable medium versions of the claimed methods discussed above (claim 3), wherein all claim limitations also have been addressed as set forth above. King further discloses a system and a computer-readable medium for performing the aforementioned method steps (see Figs. 4 and 5). Therefore, for reasons stated above, such claims also would have been obvious.

11. Claims 10, 29, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,983,366 to King in view of U.S. Patent No. 6,282,701 to Wygodny et al.

As per claim 10, King discloses such a method (see disclosure applied above to claim 9) but fails to expressly disclose the format argument being a pointer to a memory location in an address space of the application, and saving the pointer in the deferred trace data buffer. However, Wygodny et al. teach displaying a pointer (for example, variable names) and the contents of the memory referred to by the pointer as part of a trace output display (see Fig. 11; and column 20, lines 1-26). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include a pointer as a format argument as per the teachings of Wygodny et al. One would be motivated to do so to be able to display the memory locations stored in pointer variables in a trace output.

As per claims 29 and 48, these are system and computer readable medium versions of the claimed method discussed above (claim 10), wherein all claim limitations also have been addressed as set forth above. King further discloses a system and a computer-readable medium for performing the aforementioned method steps (see Figs. 4 and 5). Therefore, for reasons stated above, such claims also would have been obvious.

12. Claims 11-14, 30-33, and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Wygodny et al. as applied to claim 10 above, and further in view of Bugg.

As per claims 11-14, in addition to the teachings applied above, see the rationale provided above for claims 16-19, wherein all limitations have been addressed as set forth above. Accordingly, for reasons stated above, such claims also would have been obvious.

As per claims 30-33 and 49-52, these are system and computer readable medium versions of the claimed methods discussed above (claims 11-14), wherein all claim limitations also have been addressed as set forth above. King further discloses a system and a computer-readable medium for performing the aforementioned method steps (see Figs. 4 and 5). Therefore, for reasons stated above, such claims also would have been obvious.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Kiss whose telephone number is (703) 305-7737. The examiner can normally be reached on Tue. - Fri., 7:30 am - 5:00 pm. The examiner can also be reached on alternate Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on (703) 305-4552.

Any response to this action should be mailed to:

Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Or faxed to:

(703) 746-7239 (for formal communications intended for entry)

Or:

(703) 746-7240 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, 22202, Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

EBK /EBK
July 1, 2003



TUAN Q. DAM
PRIMARY EXAMINER